

(GOSS NET 1)

Tape 28

Page 3

01 16 05 40

CDR

Very good.

01 16 05 48

CC

But although the Oilers didn't do so well out on the field, they did great in the box office. Bud Adams, Don Klausterman and Wally Lemm were all - real pleased with it. By the way, they were at the Cape to watch the show. Houston in 11 games - the Oilers attracted 460 628 people.

01 16 06 12

CDR

That must be a record? For them? I don't believe they ever got that many in Rice Stadium.

01 16 06 23

CC

I think so. Let's see the regular season attendance was about half that. This includes all the exhibition games. The paper says they averaged about 40 480 for the league games.

01 16 06 38

CDR

Great!

01 16 06 45

CC

Well, that's about it for now, Frank. We got some more news that they promised they would bring over as soon as it comes off the wire. The only thing of real interests were - particularly the Pueblo release. I think you've already been told about the - Nixon-Eisenhower wedding. And about the only other thing is the weather which is pretty clear around here. We've got high overcasts. But it is cold, good visibility, and it's beginning to feel like winter again.

01 16 07 20

CDR

Good time for Christmas, good weather for Christmas.

(01 16 07 37

CC

Who have you got up now, Frank?

(GOSS NET 1)

Tape 28
Page 4

01 16 07 41 CDR The other two guys are pretty sleepy. They sacked out again. So I am holding the fort down for a while.

01 16 07 48 CC Okay. Thanks.

01 16 07 52 CDR Roger. Thank you.

01 16 08 00 CC Frank, we had a little egg nog over Charlie Duke's tonight.

01 16 08 03 CDR Say again.

01 16 08 04 CC We had a little egg nog at Charlie Duke's tonight. Vale Anders dropped by. She's looking fine. Tell Bill she's doing real fine.

01 16 08 14 CDR Fine.

01 16 08 43 CDR How do you like shift work, Jerry?

01 16 08 51 CC It's great Frank. You've got the black watch watching you tonight.

01 16 08 56 CDR Yes, that's what I figured.

01 16 11 17 CDR Boy, Jerry. That earth is sure looking small.

01 16 11 25 CC Roger. I guess it'll get smaller, too.

01 16 11 33 CDR Yes, we're getting along pretty good, though, now.

01 16 11 36 CC Real good. It looks like you're approaching a 150 000 miles.

01 16 11 42 CDR Roger.

01 16 11 48 CC How does the moon look, Frank?

01 16 11 52 CDR Say again.

01 16 11 53 CC Have you looked at the moon lately?

01 16 11 57 CDR No. I saw it yesterday, but we haven't seen it today.

(GOSS NET 1)

Tape 28
Page 5

01 16 12 51 CC Frank, you've probably already been told this, but you looked great on TV today. One little homey item, though. In the El Lago area you were upstaged by Santa Claus. He came along on a fire engine just about the time you guys came along. So most of the little critters were all outside.

01 16 13 10 CDR That's good. I wish we could have got that one lens working. I'd like to share the view here we have of the earth.

01 16 13 20 CC Frank, we've got some guys looking at it. We might be able to find a way to make it work for you. Hopefully, by a couple of hours before TV time tomorrow, we'll have an answer.

01 16 13 31 CDR Very good.

01 16 13 32 CC Jack Schmitt is working with us, too.

01 16 13 39 CDR Very good.

01 16 13 41 CC Ah, Jack Schmitt's working with it, too.

01 16 13 43 CDR Very good. That's Typhoid Jack.

01 16 13 44 CC (Laughter)

01 16 14 06 CDR This COMM is so good we don't figure we'll have much to debrief.

01 16 14 13 CC Roger. Probably the biggest part of the debrief will be the medical part.

01 16 14 26 CDR Roger. You're sure right. Oh, we're all in fine shape.

(GOSS NET 1)

Tape 28
Page 6

01 16 14 45 CC Real fine, Frank.

01 16 48 42 CDR Houston, Apollo 8. We have just completed the
canister change.

01 16 48 47 CC Apollo 8, Houston. Roger. Copy.

END OF TAPE

APOLLO 8 AIR-TO-GROUND VOICE TRANSCRIPTION

(GOSS NET 1)

Tape 29

Page 1

01 17 37 31	CC	Apollo 8, Houston.
01 17 37 36	CDR	Go ahead.
01 17 37 37	CC	Apollo 8, this is Houston. We have a handover coming up in 2-1/2 minutes to Guam. Over.
01 17 37 44	CDR	Okay, Jerry. Thank you. Hey, Jerry?
01 17 37 52	CC	Go ahead.
01 17 37 55	CDR	How about a long-range guess on what the weather is going to be like in the recovery area on Friday.
01 17 38 03	CC	Roger, Frank.
01 17 44 52	CC	Apollo 8, Houston, with a weather watch.
01 17 45 02	CDR	Go ahead, Houston. Apollo 8.
01 17 45 04	CC	Roger, Frank. For 7 degrees, 38 minutes north, 165 west landing area, we are showing 2000 scattered, 12 000 broken, high over and 10; the wind's from the east at 12, 4-foot swells, about an 82 degree temperature. There will be some rain showers in about 10 to 30 percent of the area with ceilings around 2000. If there is - turns out to be a thunderstorm in the area, it will probably have a ceiling around 500 feet.
01 17 47 02	CC	Apollo 8, Houston. Did you copy that weather okay?
01 17 47 05	CDR	Roger. I said thank you. Do you read me now?
01 17 47 07	CC	Roger. Reading you much better. We got the voice coming down through Honeysuckle now.
01 17 47 14	CDR	Okay.

(GOSS NET 1)

Tape 29
Page 2

01 17 58 23 CC Apollo 8, Houston.

01 17 58 27 CDR Go ahead, Houston. Apollo 8.

01 17 58 29 CC Roger, Frank. Can you cycle the H₂ and O₂ cryo fans now for us?

01 17 58 38 CDR Roger. Will turn her now, the H₂. Manual - 2 minutes.

01 17 58 44 CC Roger.

01 17 58 55 CDR You may need to call us now and then. Everybody is a little drowsy.

01 17 59 01 CC Okay, Frank.

01 18 07 07 CDR That completes it, Jerry. They're all cycled through.

01 18 07 11 CC Roger, Frank.

01 18 07 21 CDR Houston, Apollo 8.

01 18 07 23 CC Apollo 8, Houston. Roger.

01 18 07 28 CDR Did you get my message about the fans?

01 18 07 31 CC Sure did, Frank. Thanks.

01 18 07 35 CDR Okay.

END OF TAPE

Span Room

APOLLO 8 AIR-TO-GROUND VOICE TRANSCRIPTION

(GOSS NET 1)

Tape 30
Page 1

01 18 44 47	CDR	Houston, Apollo 8.
01 18 44 52	CC	Apollo 8, Houston. Go.
01 18 45 00	CC	Apollo 8, Houston. Go.
01 18 45 04	CDR	Roger. The cabin temperature is down to 60, and it's getting pretty chilly in here. Have you got any approved solutions on how to bring it up without stirring up this nice thermal balance we have?
01 18 45 15	CC	Roger. Stand by.
01 18 46 01	CC	Frank, do you have your cabin fans on?
01 18 46 05	CDR	Negative.
01 18 46 06	CC	Roger.
01 18 46 08	CDR	We haven't had them on since we separated.
01 18 46 14	CC	Okay.
01 18 46 22	CC	Apollo 8, Houston.
01 18 56 26	CDR	Go ahead.
01 18 56 28	CC	Roger, Frank. Midcourse number 3 looks like just a shade more than 1 foot per second, so we don't recommend that you do it. That leads us off into a midcourse 4 of only about 3 feet per second right now. Your trajectory is looking real good. Your height at pericynthian is 70 miles.
01 18 56 53	CDR	Roger. Understand. Thank you.
01 18 56 55	CC	Roger. Roger, Frank. Little few thoughts on what is coming up now. The star sightings when

(GOSS NET 1)

Tape 30
Page 2

Jim gets up; looks right now like we've had enough of the earth horizon, and everything looks real good; and we are ready to start on some lunar horizon sightings. So when Jim gets up, we will pass the flight plan update to him for a set of stars with the moon. Also, around 48, or after the star sightings is when we would like to see your next water dump come up. So, if you can, I recommend you get a little shuteye.

01 18 57 36 CDR Roger. Have you got any answer about warming this place up a little bit?

01 18 57 40 CC Roger. They are still cranking around. They are talking about cabin fans, but that sounds like sort of a noisy proposition.

01 19 05 17 CC Apollo 8, Houston.

01 19 05 21 CMP Go ahead.

01 19 05 23 CC Apollo 8, this is Houston. I have got two methods for you to warm up the cabin there. The first one is a one-man job - about the best way would be to one or both cabin fans ON and go full hot on the cabin heat exchanger. It'll be a fairly slow process of warming up, and you won't get a whole lot of heating. Your second method would be to adjust with the mixing valve your radiator OP temperatures. This, again, is a two-man job, and you have to be pretty careful.

(GOSS NET 1)

Tape 30
Page 3

01 19 06 03 CMP Roger. Well, Frank just went to bed, and Bill isn't up yet. I'll tell you what I'll do. I'll put on the fans and go HIGH on the cabin temperature and see what that does.

01 19 06 16 CC Okay, Jim. Remember, if you use just one fan, cover the other.

01 19 06 26 CMP Roger.

01 19 10 22 CMP Houston, Apollo 8.

01 19 10 25 CC Apollo 8, Houston. Go.

01 19 10 30 CMP Roger. If I use just one fan - You mentioned about covering the other one - are you sure that's true in this spacecraft?

01 19 10 43 CC Roger. That's affirmative.

01 19 10 49 CMP I thought that was a BLOCK I problem.

01 19 11 01 CC Stand by, Jim. We'll recheck on that one.

01 19 11 16 CC Apollo 8, Houston. Did you get the word from Frank on the star-sighting plans?

01 19 11 25 CMP Roger. I'll get out the flight plan if you have an update to it now, though, then we can update it right now.

01 19 11 32 CC Okay.

01 19 28 42 CC Apollo 8, Houston.

01 19 29 07 CC Apollo 8, Houston.

01 19 29 11 CMP Go ahead, Houston.

00 19 29 14 CC Roger. Are you ready for that flight plan update?

(GOSS NET 1)

Tape 30
Page 4

01 19 29 21 CMP Roger. Go ahead.

01 19 29 23 CC Okay. At 47:15, delete the P23 sightings
you're showing there; and at 45 minutes -
correction, 45 hours, add one additional
set of sightings to each star.

01 19 29 52 CMP Okay. You said at 45 hours we're going to
add one set of sightings to each of the three
stars. Is that correct?

01 19 29 58 CC That's affirmative. Everybody's real pleased
with the earth horizon work; and as far as
we're concerned, you can knock that off, and
just add one set to each one of your lunar
horizon stars at about 45. This 45 our time
also is not hard. You can shift it as your -
as you desire.

01 19 30 25 CMP Roger. I see things coming up now. Jerry,
we're going to get the block data around 44,
and we'll do alignment around 44:30 and then
we'll go into cislunar navigation.

01 19 30 39 CC Okay. Fine, Jim. Then remember after you do
the sightings, we'll want you to go back to
the PTC mode again. And a little curiosity,
how's the water tasting, and how did you sleep?

01 19 30 57 CMP Water's tasting okay; no problems. And the
sleep is getting better. We find it better to
sleep underneath the couch now. I was up here

(GOSS NET 1)

Tape 30
Page 5

with Frank, and I was dozing off periodically over the last several hours. Frank's now below and Bill's below, too.

01 19 31 17	CC	Okay, Jim; thanks.
01 19 37 27	CC	Apollo 8, Houston.
01 19 37 31	CMP	Go ahead, Houston.
01 19 37 32	CC	Apollo 8, we've got a command handover from Guam to Honeysuckle coming up in about 2 and 1/2 minutes.
01 19 37 43	CMP	Roger.
01 19 39 22	CMP	Houston, Apollo 8.
01 19 39 27	CC	Go ahead, Apollo 8. This is Flight -
01 19 39 33	CMP	... at this distance --
01 19 39 38	CC	Say again, Apollo 8.
01 19 39 39	CMP	... at this distance, there is no problem - there is no problem in seeing stars in the daylight at this distance.
01 19 39 53	CC	Roger. Copy.
01 19 40 23	CC	Apollo 8, Flight.
01 19 40 27	CMP	This is 8; go ahead.
01 19 40 29	CC	Jim, are you talking about out the window or out any of the - or out the telescope?
01 19 40 36	CMP	I am looking out the window right now. I have the lights out in the spacecraft, the window covered where the sun is, and I can see the stars very well out the left rendezvous window.

(GOSS NET 1)

Tape 30

Page 6

01 19 40 49 CC Okay. I guess that window is still pretty good for you then.

01 19 40 55 CMP That's right. It is one of the few that is. The center window, unfortunately, is all fogged over; it looks like a coating of ice or coating of heavy fog. Bill claims it is something else, though.

01 19 41 12 CC Roger. By the way, I am just getting OJT on this CAP COMM job while Jerry is out of the room.

01 19 41 25 CMP Well, we all have to learn sometime.

01 19 41 31 CC Yes sir.

01 19 41 47 CMP You picked a midnight shift, I see.

01 19 41 50 CC Yes, it is turning out to be kind of quiet, too.

01 19 41 57 CMP We like it that way.

01 19 42 00 CC Well, things will pick up here by tomorrow night, I think.

01 19 42 05 CMP I believe you are right.

01 19 42 14 CC We're starting to show cabin temperature at 70, so it may be warming up for you.

01 19 42 21 CMP Well, we can feel it warm up. I have both fans on and the - our gages indicate about 70.

01 19 42 28 CC Okay. And I have got a real CAP COMM back now.

01 19 53 47 CC Apollo 8, Houston.

01 19 53 52 CMP Go ahead, Houston. Apollo 8 here.

(GOSS NET 1)

Tape 30
Page 7

01 19 53 55 CC Apollo 8. This is Houston, with a flyby, and a PC, pericynthian plus 2 hours maneuver PAD, when you are ready to copy.

01 19 54 16 CMP Ready to copy.

01 19 54 18 CC Roger. Your TLI plus 44 maneuver PAD is good, requires no update. Flyby maneuver PAD follows: SPS/G&N 62954, minus 162, plus 129. Copy?

01 19 54 55 CMP I am copying.

01 19 54 57 CC Roger. 060 59 4808, plus 00953, plus 00578, minus 02076 000 000 000. Copy?

01 19 55 46 CMP I am copying. Stand by. I am going to switch to OMNI antenna.

01 19 55 50 CC Roger. Standing by.

01 19 56 03 CMP Okay. Go ahead.

01 19 56 05 CC Roger. HA is not applicable, plus 00202, 02356 022 02280 03 0393 310 013, up 048, right 35 - I repeat, right 35. Copy?

01 19 57 08 CMP Copy.

01 19 57 11 CC Roger. Plus 1418, minus 16505, 12904 36160 146 29 11; GDC align with your Sirius, Rigel set stars, 137 311 339; no ullage. Copy?

01 19 58 14 CMP We are copying.

01 19 58 16 CC Roger. I have two comments. Number one; requires realignment to preferred REFSMMAT; two, raises perilune to 554 miles. Over.

01 19 58 42 CMP Roger. I have it. Stand by for readback.

(GOSS NET 1)

Tape 30
Page 8

01 19 58 46 CC Roger. Standing by.

01 19 58 51 CMP Flyby maneuver SPS/G&N 62954, minus 162, plus 129 060 59 4808 953 578 - those are 00953 and plus 000578 - minus 02076 000 000 000, not applicable, plus 00202, 02356 022 02280 03 0393 310 013, up 048, right 35, plus 1418, minus 165 05 12904 36160 146 2911, Sirius, Rigel 137 311 339, no ullage, requires re-alignment to preferred REFSMMAT, raises perihelion to 554 nautical miles.

01 20 00 25 CC Roger. Jim, that is correct. Let me know when you are ready for your PC plus 2.

01 20 00 37 CMP Okay. Let's go on PC plus 2.

01 20 00 40 CC Roger. Pericynthian plus 2, data return, SPS/G&N 61503, minus 158, plus 131 071 36 1244, plus 59578, minus 00086, minus 05287. Copy?

01 20 01 39 CMP I am copying.

01 20 01 41 CC Roger. 012 080 018, not applicable, plus 00203 59813 650 59566 11 2160 332. Copy?

01 20 02 31 CMP Copying.

01 20 02 33 CC Roger. Earth up 005, right 27, plus 0398, plus 06500 13215 36961 106 1911, Sirius, Rigel, 137 311 339, no ullage. Copy?

01 20 03 37 CMP Copy.

01 20 03 39 CC Roger. I have five remarks. Number one, assumes execution of flyby maneuver; number two,

(GOSS NET 1)

Tape 30

Page 9

use same alignment as for flyby; number three, time of midcourse number 5 for GERU determination GET of 83:38. Copy?

01 20 03 29 CMP

Roger.

01 20 03 31 CC

Roger. Two remarks to go. Number four, - stand by - number four: use P37 NC dash 4, steps 1 through 10 and NC-8, steps 3 and 4. Remark number five: average V 400K for corridor control chart equals 36531. Over.

01 20 05 41 CMP

Roger, Houston. PC plus 2, maneuver plan as follows: SPS/G&N 61503, minus 158, plus 131, 07136 1244. Copy?

01 20 06 06 CC

Roger. Copy.

01 20 06 10 CMP

Plus 59578, minus 00086, minus 05287, 012 080 018, not applicable, plus 00203 59813 650 59566 11 2160, 332, earth up 005, right 27, plus 0398, plus 06500 13215 36961 106 19 11; Sirius Rigel 137 311 339, no ullage, assume execution of flyby maneuver, uses stable alignment as the flyby; time of MCC 5 for GERU determination is 83 plus 38; use P37 NC-4 steps 1 through 10, NC-8 steps 3 and 4. Average V 400K for corridor control chart 36531.

01 20 07 46 CC

Roger, Jim. That's all correct.

01 20 08 00 CC

Apollo 8, Houston. That PC plus 2 is a fast return.

O (GOSS NET 1)

Tape 30
Page 10

01 20 08 08

CMP

Roger. Understand. Fast return.

END OF TAPE

O

O

APOLLO 8 AIR-TO-GROUND VOICE TRANSCRIPTION

(GOSS NET 1)

Tape 31
Page 1

01 21 14 50 CMP Houston, Apollo 8.

01 21 14 55 CC Apollo 8, Houston. Go.

01 21 15 00 CMP Roger. Just some interesting things on the -
just done a NAV with the moon; the sun is cur-
rently right in the way. I managed to get
one set on Antares and was working on the
second set, and the rim of the moon just dis-
appeared completely. The view through the
sextant is a milky white, whether you're look-
ing at black sky or the moon. The tint of
the moon is slightly washed out by the bright-
ness of the sun. I'll try the next star and
see what I can do with it.

01 21 15 35 CC Roger, Jim.

01 21 15 56 LMP Good morning, Houston. How are the systems
looking here lately?

01 21 16 02 CC Mornin', sleepy head. Systems are looking
GO.

01 21 16 11 LMP Thank you.

01 21 16 34 CC How'd you sleep, Bill?

01 21 16 41 LMP Oh, off and on, Jerry. There was quite a
bit of noise in here, and anytime somebody
responds to a transmission, why, it tends to
wake you up. But it was a reasonably good
rest.

01 21 16 54 CC Real fine. We got a little work scheduled
for you here. We've got an ECS redundant

(GOSS NET 1)

Tape 32
Page 6

O 01 22 46 35 CMP Okay, Houston. Here comes the status report.

01 22 46 42 CC Roger. We're ready to copy.

01 22 46 46 CMP Roger. For sleep, each of us has had two sleep periods; Frank's in his third one right now. Bill had 6 hours the last time; I had 4 hours the last time. Good to fair, both of us. Frank had 5 hours the last time, of fair. And Frank, of course, is sleeping now.

01 22 47 18 CC Roger, Jim. How are the three of you feeling?

01 22 47 24 CMP We're all feeling pretty good now; no problems. We've all had about between 40 and 60 ounces of - or clicks of water so far today.

O 01 22 47 38 CC Okay.

01 22 47 43 CMP The food: we're up to - we've eaten day 2, meal 2 so far. And both of us have eaten the rehydratables and the juices and about half of the solids.

01 22 48 07 CC Roger. Copy.

01 22 48 15 CMP The cabin's running slightly cold. We do have one cabin fan ON, and we're in full heat, and it's running just slightly under 70. Might be a design note for future spacecraft.

01 22 48 31 CC Roger, Jim. That fan pretty noisy?

01 22 48 37 CMP It's not as noisy as both fans when they're running; we cut it down to one fan.

C 01 22 48 43 CC Roger. We keep thinking we hear it when you're talking to us.

(GOSS NET 1)

Tape 31
Page 2

component check to run and some fuel cell purging to do.

01 21 17 06 LMP Okay. How about if we wait until this NAV exercise is over with?

01 21 17 11 CC Roger.

01 21 18 23 CC Bill, what we have planned for you right after Jim gets finished is a waste water dump, a cryo fan cycle, redundant component check, and a fuel cell purge.

01 21 18 37 LMP Roger.

01 21 18 40 CC We'll be wanting an O₂ and H₂ fuel cell purge; we'll give you a 20-minute hack on the heater.

01 21 18 51 LMP Okay. Want me to turn them on now or when you give me a hack?

01 21 18 56 CC You better wait about 20 minutes.

01 21 19 01 LMP Okay.

01 21 25 13 CC Apollo 8, Houston. Bill, are you still eating?

01 21 25 21 LMP Doing what?

01 21 25 25 CC Are you busy eating?

01 21 25 26 LMP Negative. I'm watching the store while Jim does his NAV sighting and then recording the data for him.

01 21 25 33 CC Okay. We have a correction to make to your TLI plus 44 hour PAD. If you've got a chance there, we'd like to fire it on up to you.

(GOSS NET 1)

Tape 31
Page 3

01 21 25 47 LMP Stand by.

01 21 25 50 CC Roger.

01 21 26 17 LMP Okay. Ready to copy the correction to TLI plus 44.

01 21 26 24 CC Roger. The correction is in the remarks at the end. Delete the reference to high speed procedure minus NA.

01 21 26 42 LMP Roger. Delete minus NA slash NC-1, Charlie.

01 21 26 49 CC That's affirmative, and copy the following. This comment should read use P37 NC-4, step 1 through 11. Over.

01 21 27 15 LMP Roger. Use P37 NC-4, steps 1 through 11.

01 21 27 22 CC Roger. Then proceed to longitude control for no COMM procedure, page NC-7.

01 21 27 46 LMP You went a little fast. Say again the page.

01 21 27 49 CC Roger. That page is NC-7. I'll read that again. Then proceed to longitude control for no COMM procedure, page NC-7. Average 400K, V 400K, for corridor control charts is 36253. I repeat, average V 400K for corridor control charts is 36253. Over.

01 21 28 42 LMP Roger. Say again. That's average C as in George.

01 21 28 47 CC Negative. Average Victor 400K for corridor control chart is 36253.

(GOSS NET 1)

Tape 31
Page 4

01 21 29 03 LMP Roger. Average V 400K for corridor control chart is 36253.

01 21 29 11 CC Roger. The minus NA procedure is okay after abort when the GERU is less than 07990.

01 21 30 08 LMP Roger. Minus NA procedure okay for abort when GERU less than 07990.

01 21 30 20 CC Roger. I'll read back the entire remarks now just to make sure we got it straight. Use P37 NC-4, steps 1 through 11; then proceed to longitude control for no COMM procedure on page NC-7; average Victor 400K for corridor control chart is 36253; Minus NA procedure is okay after abort when GERU is less than 07990.

01 21 31 14 LMP Roger. Copy.

01 21 42 24 CC Apollo 8, Houston.

01 21 42 29 LMP Go ahead.

01 21 42 31 CC Bill, you can turn on the H₂ purge line heater now.

01 21 42 36 LMP Okay.

01 21 47 41 CC Apollo 8, Houston.

01 21 47 47 CMP Go ahead, Houston.

01 21 47 49 CC Jim, when you get a chance, either you or Bill, would you give us a crew status report on you and Bill?

01 21 47 57 CMP Roger. We're going to finish up this one set of stars for you, then we'll do that.

O (GOSS NET 1)

Tape 31
Page 5

01 21 48 01 CC Okay.
01 21 48 11 CMP Have you been getting this data down there
in Houston.
01 21 48 15 CC That's affirmative, Apollo 8.
01 21 48 38 CC Jim, so far we've only missed one point; we'll
ask you to read it back a little bit later.
01 21 48 49 IMP Which one do you need?
01 21 48 56 CC Stand by.

O
END OF TAPE

O

APOLLO 8 AIR-TO-GROUND VOICE TRANSCRIPTION

(GOSS NET 1)

Tape 32
Page 1

01 21 -- -- CC Apollo 8, Houston. What we need is the third
mark on the first set, star 33, trunnion only.
Over.

-- -- -- LMP Roger. That's the only one we're in doubt of.
We think it was 12020.

-- -- -- CC Roger. Copy.

-- -- -- CMP Okay. That completes two for this time, Houston.
Are you satisfied?

-- -- -- CC Roger, Jim.

-- -- -- CMP Houston, for information, the last two stars,
34 and 40, were shot at the very tip of the lit
rim. You practically have to imagine the rim
continued on past where it goes into the dark-
ness.

-- -- -- CC Roger. I understand they were shot at the tip
of the lit rim.

-- -- -- CMP That's affirmative, and the area around the entire
moon now, both the sky and the moon itself, are all
a milky white because of the nearness of the sun.

-- -- -- CC Roger. Copying.

01 21 53 42 CC Apollo 8, Houston. You can reestablish PTC same
attitude, 224 and 20.

01 21 53 53 LMP Roger, Houston. I'm heading that way now.

01 21 53 56 CC Okay.

01 22 01 33 CC Apollo 8, Houston.

01 22 01 37 LMP Go ahead, Houston.

(GOSS NET 1)

Tape 32
Page 2

01 22 01 39 CC We'd like to have you start your waste water dump as soon as you can; dump to 20 percent. We're doing this in order to get 71 percent at LOI. Over.

01 22 01 55 LMP Understand; 20 percent.

01 22 01 58 CC Roger.

01 22 14 32 CC Apollo 8, Houston.

01 22 14 36 LMP Go ahead, Houston.

01 22 14 38 CC Roger. We see waste water coming down now. While it's on its way down, how about a cryo fan cycle?

01 22 14 48 CMP Okay. Cryo fan cycle; I'll cycle H_2 and O_2 fans, one at a time, 2 minutes each.

01 22 14 56 CC Roger.

01 22 21 56 CC Apollo 8, Houston. We're showing you at 20.0 percent now.

01 22 22 07 LMP Roger. We're showing about 25. We'll shut it off now.

01 22 22 12 CC Roger. Next on deck is the fuel cell H_2 , O_2 purge.

01 22 22 21 LMP Stand by.

01 22 30 34 LMP Okay. Houston, we're ready to start the purge.

01 22 30 38 CC Roger, Bill. While you're purging, can you give us a crew status report?

01 22 30 49 LMP That's going to be O_2 and H_2 . Is that correct?

01 22 30 52 CC Affirmative.

01 22 31 00 LMP Roger. H_2 first, okay?

01 22 31 07 CC Roger. That's okay.

(GOSS NET 1)

Tape 32
Page 3

01 22 32 13 LMP We're getting H_2 flow, Jerry, but we don't have any of the - any vapor particles anywhere. Some are starting now.

01 22 32 33 CC Roger. We confirm your flow and understand you're seeing particles now.

01 22 32 42 LMP Not much, though. Okay. Now going to number 2.

01 22 32 45 CC Roger.

01 22 33 08 LMP You know, it's really too bad the side windows are fogged up because we never see any sun in the rendezvous windows, and we can't get very good pictures through these foggy ones.

01 22 33 22 CC Roger.

01 22 34 36 LMP Start number 3, H_2 .

01 22 36 21 LMP Okay. Start number 3, O_2 .

01 22 36 28 CC Roger, Apollo 8. Apollo 8, this is Houston. Would you set for ACCEPT for a P27 update, state vector to your limb sides, and we'd like you to --

01 22 36 46 LMP Say again.

01 22 36 48 CC Roger, Bill. Would you set up to ACCEPT a state vector update? We'll be putting it in the limb slot, and do not unzip. Over.

01 22 37 02 LMP Roger. NORMAL ACCEPT.

01 22 37 17 LMP We're going to put the word "zap" back in the dictionary.

01 22 37 20 CC Roger, Batman.

01 22 38 19 CMP Houston, Apollo 8.